

Economic Forecasting

Last Updated: Thu, 12/18/2025

Course prefix: ECON

Course number: 4160

Section: DW1

CRN (you may add up to five):

31404

Instructor First Name: Thomas

Instructor Last Name: Woodbury

Semester: Spring

Academic year: 2026

Course description:

Surveys modern time series econometrics with topics such as univariate models, vector autoregressions, linear and nonlinear filtering, frequency domain methods, unit roots, structural breaks, empirical process theory asymptotics, and forecasting. The course highlights applications in macroeconomics and finance.

Course learning outcomes:

This course introduces the theory and application of time series methods for forecasting, utilizing R. Topics covered will include graphics, time series decomposition, forecasting tools, confidence bands, regression models, exponential smoothing, autoregressive models, moving-average models, and unit roots.

By completing this course, you will become familiar with various forecasting techniques and be able to perform forecasts in R. You will have an opportunity to collect data, code in R to perform forecasts, analyze the results, present your findings, and write about your forecasts.

Required course materials:

Statistical Inference via Data Science: A ModernDive into R and the Tidyverse (2nd ed) by Chester Ismay and Albert Y. Kim. Found at: <https://moderndive.com/index.html>.

Forecasting: Principles and Practice (3rd ed) by Rob J Hyndman and George Athanasopoulos. Found at: <https://otexts.com/fpp3/>.

You may also find useful the following: [Getting Used to R, RStudio, and R Markdown \(rbasics.netlify.app\)](https://rbasics.netlify.app/).

Grading policy:

There are three components to your grade. The first is coursework and quizzes (40%). Typical assignments contain both written and oral parts. This work may be done both in and out of class. Some assignments may be completed with a partner or small group. The second area is exams (30%). There will be two mid-term exams this semester during class time. The third component of your grade is a project (30%). This project is to be done using R and will contain a presentation and paper component due at the time of the final exam, as scheduled by the institution's Registrar.

Attendance policy:

Attendance is not taken, but in-class assignments, quizzes, and exams take place in class. Work in this class is only allowed to be made-up when the student has an excused absence. I will use a standard definition of excused absences that includes: serious illness, illness or death of family member; College-related trips; and major religious holidays. In each case, appropriate verification may be required. Students missing assignments due to an excused absence bear the responsibility of informing the instructor about their excused absence within one week following the period of the excused absence (except where prior notification is required). At that point, the new date for completion will be determined between the student and the professor.

Academic honesty/integrity statement:

Students are expected to maintain the highest standards of academic integrity. All work submitted must be original and properly cited. Plagiarism, cheating, or any form of academic dishonesty will result in immediate consequences as outlined in the university's academic integrity policy.

Core IMPACTS statement(s) (if applicable):

This is a Core IMPACTS course that is part of the Social Sciences area.

Core IMPACTS refers to the core curriculum, which provides students with essential knowledge in foundational academic areas. This course will help students master course content, and support students' broad academic and career goals.

This course should direct students toward a broad Orienting Question:

- How do I understand human experiences and connections?

Completion of this course should enable students to meet the following Learning Outcome:

- Students will effectively analyze the complexity of human behavior, and how historical, economic, political, social, or geographic relationships develop, persist, or change.

Course content, activities and exercises in this course should help students develop the following Career-Ready Competencies:

- Intercultural Competence
- Perspective-Taking
- Persuasion